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EXAMINER	
HEIDEMANN, JASON E	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	**Application No.** 10/593,359	**Applicant(s)** KOKUBUN ET AL.	
	Examiner Jason Heidemann	**Art Unit** 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 September 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,9,11,13-16 and 18-21* is/are rejected.

7)☒ Claim(s) *4-8,10,12 and 17* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 September 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *01/04/2007, 09/18/2006*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-21 are pending

Priority

2. This application is a continuation of continuation of International Application No. PCT/JP05/04305, filed 03/11/2005.

3. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d) of Japan Application No. JP 2004-110756, filed on 04/05/2004. The certified copy has been filed on 09/18/2006.

4. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d) of Japan Application No. JP 2004-080939, filed on 03/19/2004. The certified copy has been filed on 09/18/2006.

Drawings

5. The drawings are objected to because of a spelling error on Figure 9, the word "scann" is misspelled and examiner believes the word should be "scan". Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be

canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 9, 14 -16, 18, 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Yavuz et al. (US Patent #, 6,539,074 hereinafter Yavuz)

As to Claim 1, Yavuz discloses an image data collection control method for collecting multiple pieces of image data from an image data collection range including a periodically moving part of an object to be examined (*Yavuz, abstract), Fig. 10)*, the method comprising:

a periodic motion data obtaining step of obtaining periodic motion data indicating a change of a periodic motion with time (*Yavuz, Fig.5, Column 10, Lines 1-52, Column 11, Lines 4-10, Columns 2, Lines 5-15, 32-44, 53-59, Column 8, Lines 19-30 the EKG data is collected which provides time info that indicates a change in periodic motion, which allow the sensor to acquire correlated images of a heart beating (periodic motion), the data collected represents the heart in all difference phases of the cardiac cycle (periodic motion with time)*);

an image data collection condition setting step of setting an image data collection condition for allowing the image data of the image data collection range to have a time resolution within a desired range (*Yavuz, Fig.5, Column 10, Lines 43-67, and Column 11, Lines 4-10 the collection time of the electrocardiographic data is correlated to the EKG will provides time info regarding which projection maybe correlated or cross-reference to the heart phases in the successive cardiac cycles, this allows images captured to have better time resolution (images of the cycle) and images that correspond to one another to allow reconstruction*);

an image data collection position control step of relatively moving at least a part of the image data collection range and a collection position of the image data such that

the part of the range and the collection position are superimposed on each other within a time when the image data of the image data collection range has a time resolution within the desired range based on the image data collection condition (*Yavuz, Fig. 12, Fig. 4A and Fig. 4B, Column 6, Lines 16-25, Column 2, Lines 22-44, 63-67, Column 3, lines 1-8, Column 10, Lines 43-67, and Column 11, Lines 4-15, part of the imaging process (image data collection position control step)is positioning the subject on a motorized table using control signals from the control system, and the EKG is used to collect time (electrocardiographic) data which is added to (imposed) with the collected image scans to allow the projections to be related for the reconstruction of stacked slice images or reconstruction of a three-dimensional model*);

and an image data collecting step of collecting the image data of at least the part of the image data collection range on the image data collection position (*Yavuz, Fig.5, Column 10, Lines 1-52*).

As to Claim 2, Yavuz teaches the image data collection control method according to claim 1, wherein the image data collection condition setting step includes:

a projected image obtaining step of obtaining a projected image of the object (*Yavuz, Fig. 10, el 1010, Column 14, Lines 21-40, collect a projected image of an object*), and

an image data collection range designating step of designating the image data collection range based on the projected image (*Yavuz, Fig. 10, Column 14, Lines 21-40,*

el 1020, determines to collect a set of projection view image at selected view angles of an object based on the projection data).

As to Claim 9, Yavuz teaches the image data collection control method according to claim 1, wherein in the periodic motion data obtaining step, the periodic motion data is obtained without performing a step for generating the image data in the image data collecting step (*Yavuz, Fig.1, el 160, Fig.5, Column 10, Lines 42-52, Column 11, Lines 4-10, Columns 2, Lines 5-15, 32-44, 53-59, Column 8, Lines 19-30 Yavuz uses a (*electrocardiograph*) EKG to acquire EKG data (periodic motion data), and the periodic motion data is obtained without performing a step for generating image data since as known an EKG data is a 1-D temporal signal of the heart activity, rather than 2-D image*).

As to Claim 14, Yavuz teaches the image data collection control method according to claim 1, wherein in at least one of the periodic motion data obtaining step and the image data collecting step, at least one of factors changing the periodic motion is conveyed at least to the object (*Yavuz, Column 2, Lines 6-15, Column 10, Lines 63-67, Column 11 Lines 1-3, the patient is asked to hold their breath to maintain, to minimize motion blur in the image data collection, holding breath effects the periodic motion of the heart*)

As to Claim 15, Yavuz teaches the image data collection control method according to claim 1, wherein the periodically moving part is a heart (Yavuz, Column 2, Lines 6-15, Column 9, Lines 60-65, Abstract, the moving object is a heart), and

the periodic motion data is at least one of a breath holding time or an average breath holding time (Yavuz *Column 2, Lines 6-15, Column 10, Lines 63-67, Column 11 Lines 1-3, Fig.1, el 160, Fig.5, Column 10, Lines 42-52, Column 11, Lines 4-10, Columns 2, Lines 5-15, 32-44, 53-59, Column 8, Lines 19-30, the EKG collects data during the image acquisition phase, which is when the patient is asked to hold their breath for a time of 1.5 seconds*), the number of times of simulation training in which a heart rate or a pulse rate is increased, stabilized, or reduced by breath holding, a change or an average change in heart rate or pulse rate due to breath holding, the number of times of simulation training in which the number of periodic motions is increased, stabilized, or reduced by administration of a contrast medium, a change or an average change in the number of periodic motions due to administration of the contrast medium, and a fluctuation in heart rate or pulse rate with time in past scanning of the heart (Yavuz, *Fig.1, el 160, Fig.5, Column 10, Lines 42-52, Column 11, Lines 4-10, Columns 2, Lines 5-15, 32-44, 53-59, Column 8, Lines 19-30,* the periodic motion data is the heart rate or pulse rate measured using an EKG, and is correlated with previous EKG data from a previous scanning of the heart).

As to Claim 16, Yavuz teaches an image data collection system for collecting multiple pieces of image data from an image data collection range including a periodically moving part of an object to be examined, the system comprising:

a periodic motion data obtaining means for obtaining periodic motion data indicating a change of a periodic motion with time (*Yavuz, Fig.1, el 160, Fig.5, Column 10, Lines 42-52, Column 11, Lines 4-10, Columns 2, Lines 5-15, 32-44, 53-59, Column 8, Lines 19-30 the (*electrocardiograph*)EKG, data is collected which provides time info that indicates a change in periodic motion, which allow the sensor to acquire correlated images of a heart beating (periodic motion), the data collected represents the heart in all difference phases of the cardiac cycle (periodic motion with time)*);

an image data collection condition setting means for setting an image data collection condition for allowing the image data of the image data collection range to have a time resolution within a desired range (*Yavuz, Fig.1, el 136, 126, Fig.5, Column 10, Lines 43-67, Column 11, Lines 4-10, Column 16, Lines 1-22, the collection time of the electrocardiographic data is correlated to the EKG will provides time info (time resolution with a desired range) to allow acquisition of projections that are correlated or cross-reference to the heart phases to allow reconstruction on the projections*);

an image data collection position control means for relatively moving at least a part of the image data collection range and a collection position of the image data such that the part of the range and the collection position are superimposed on each other within a time when the image data of the image data collection range has a time

resolution within the desired range based on the image data collection condition (*Yavuz, Fig.1, el 126, el 130, Fig. 12, Fig. 4A and Fig. 4B, Column 6, Lines 16-25, Column 2, Lines 22-44, 63-67, Column 3, lines 1-8, Column 10, Lines 43-67, and Column 11, Lines 4-15, a control system sends signals to a motorized table to position the subject for acquiring image scans and the EKG is used to collect time (electrocardiographic) data which is added to (imposed) with the collected image scans to allow the projections to be related for the reconstruction of stacked slice images or reconstruction of a three-dimensional model*); and

an image data collecting means for collecting the image data of at least the part of the image data collection range on the image data collection position (*Yavuz, Fig.1, El 114, Fig.5, Fig. 7, el 714, Column 5, Lines 1-20, Column 7, Lines 20-30, Column 10, Lines 1-52*).

As to Claim 18, Yavuz teaches the image data collection system according to claim 16,

wherein the periodic motion data obtaining means obtains the periodic motion data without -generating the image data (*Yavuz, Fig.1, el 160, Fig.5, Column 10, Lines 42-52, Column 11, Lines 4-10, Columns 2, Lines 5-15, 32-44, 53-59, Column 8, Lines 19-30 the (*electrocardiograph*) EKG data is used to collected the periodic motion data, an EKG does not generate an image, rather it is a 1-D temporal signal of the heart activity*), and

the system further comprises:

a periodic motion data recording means for recording the change of the periodic motion data with time and an information on a sequence of obtaining the periodic motion data in a synchronous manner (*Yavuz, Fig.1, el 136, 126, Fig.5, Column 10, Lines 43-67, Column 11, Lines 4-10, Column 16, Lines 1-22, Column 10, Lines 42-52, Column 15, Lines 17-32, the EKG data is collected along with (synchronous) the helical scan data (image forming data)*) and

an information display means for displaying the recorded change of the periodic motion data with time and the information on the sequence of obtaining the periodic motion data in a synchronous manner (*Yavuz, Figure 1,el 142, 140, Column 6, Lines 5-15*).

As to Claim 19, Yavuz teaches the image data collection system according to claim 18,

wherein the periodic motion data recording means further records information on the object (*Yavuz, Fig.1, el 160, Fig.5, Column 10, Lines 42-52, Column 11, Lines 4-10, Columns 2, Lines 5-15, 32-44, 53-59, Column 8, Lines 19-30 the (*electrocardiograph) *EKG data (periodic motion data) is collected with an EKG, the data contains information on the object (temporal signal of the heart activity)*, and

the image data collecting means collects the image data using the periodic motion data when the periodic motion data on the object is recorded in the periodic motion data recording means (*Yavuz, Fig.1, el 136, 126, Fig.5, Column 10, Lines 43-67, Column 11, Lines 4-10, Column 16, Lines 1-22, Column 10, Lines 42-52, Column 15, Lines 17-32, the EKG data is collected along with (synchronous) the helical scan data (image forming data), then the collection time of the electrocardiographic data is correlated to the EKG will provides time info (time resolution with a desired range) to allow acquisition of projections that are correlated or cross-reference to the heart phases to allow reconstruction on the projections*).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

A.) Claims 3, 11, 13 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yavuz.

As to Claim 3, Yavuz teaches the image data collection control method according to claim 2, wherein in the image data collection range designating step, the

image data collection range is designated by designating a position to collect a particular scan at a selected view angle (*Yavuz, Fig. 10, Column 14, Lines 21-40, el 1020, allows the collections of selected view angles (position - starting and end positions) of an object based on the projection data*). However, Yavuz is silent to a starting position and an end position of collection of the image data in the projected image.

It would have been obvious to one of ordinary skilled in the art at the time to include a starting position and an end position of collection of the image data when acquiring an image. One of ordinary skilled in the art would have been motivated to incorporate a start and end positions in a collection of images, to allow faster image acquisition when a partial region of the entire capture space is necessary.

As to Claim 11, Yavuz teaches the image data collection control method according to claim 1, wherein the image data collection condition setting step includes:

a step of determining a suitable change of the periodic motion data such that the image data of the image data collection range has a time resolution within the desired range (*Yavuz, Column 10, Lines 33-50, Column 11, Lines 30-50, using the method, data sectoring where the projection view from multiple heart cycles are correlated (Suitable change) toa particular heart phase by cross-referencing the timing formation from the EKG (the periodic motion data) , the reconstruction of a single slice (image data collection range) though the heart with fine resolution in time (time resolution*).

Yavuz further teaches outputting of the reconstructed image, as well as operational data and other information, using a video display such as such as a CRT display or flat panel display (*Yavuz, Figure 1, el 142, Column 6, Lines 7-16*). However, Yavuz does not explicitly having a step of displaying a change of the periodic motion data with time and the suitable change.

It would have been obvious to one of ordinary skilled in the art at the time to include the step of displaying a change of the periodic motion data with time and the suitable change as the other information. One of ordinary skilled in the art would have been motivated to incorporate the feature of displaying a change of the periodic motion (EKG signal) with time and the suitable change, to verify the correlation of the heart cycle with previous collected imagery's periodic motion (EKG signal).

As to Claim 13, Yavuz teaches the image data collection control method according to claim 11, wherein the periodic motion data obtaining step is repeated until the change of the periodic motion data falls below a predetermined value (*Yavuz, Fig. 11 A -C, Column 10, Lines 43-67, Column 15, Lines 20-40, Column 2, Lines 22-44, Lines 63-67, Column 3, Lines 1-8, and Column 11, Lines 4-15, EKG collects the motion data (electrocardiographic) which is added to the collected image scans for the duration that the scan was collect to provide information to correspond other scans with the same cardiac period, the data would not be stored after the collection has ended, therefore it is inherent that the recording of the EKG signal is repeated until the cardiac cycle ends (or the periodic motion falls below (enters a new cycle))*)

As to Claim 21, Yavuz teaches the image data collection system according to claim 16, wherein the image data collecting means is a magnetic resonance imaging apparatus (*Yavuz, Column 2, Lines 15-22, Column 8, Lines 11-20*) including:

a control unit having a predetermined scanning sequence (*Yavuz, Column 8, Lines 11-20,*),

a magnetic field generating means for generating, in response to control of the control unit, a gradient magnetic in which the object is laid (*Yavuz, Figure 1, Column 8, Lines 11-20, and Lines 32-60, as seen in Figure 1, a object (patient) is laid on a table, and the el 114 induced a magnetic field, during data acquisition the sequence of measurement* the magnetic field gradients are varied according to the particular localization method being used), and

a signal processing means for measuring an NMR signal generated from the object and imaging the signal (*Yavuz, Figure 1, Column 8, Lines 11-20, and Lines 32-60, converts the MRI (NMR) signal into images*),

and the periodic motion data obtaining means obtains a body movement navigation signal of the object (*Yavuz, Fig.1, el 136, 126, Fig.5, Column 10, Lines 43-67, Column 11, Lines 4-10, Column 16, Lines 1-22, Column 10, Lines 42-52, Column 15, Lines 17-32, the EKG data is collected along with (synchronous) the helical scan data (image forming data), then the collection time of the electrocardiographic data is*

correlated to the EKG will provides time info (time resolution with a desired range) to allow acquisition of projections that are correlated or cross-reference to the heart phases to allow reconstruction on the projections). However, Yavuz is silent to a magnetic field generating means for generating, in response to control of the control unit, a gradient magnetic field and a high frequency magnetic field in a static magnetic field space in which the object is laid.

It would have been obvious to one of ordinary skilled in the art at the time to include the use of a method of MRI imaging by generating a gradient magnetic field and a high frequency magnetic field in a static magnetic field space in which the object is laid, since this is a well established method of obtaining MRI images. One of ordinary skilled in the art would have been motivated to incorporate the feature to acquire images of greater contrast between tissues and the body as compared to CT, which is useful in cardiovascular imaging.

B.) Claims 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yavuz in view of Pan et al. (US PgPub# 2003/0163039 A1 hereinafter Pan).

As to Claim 20, Yavuz teaches the image data collection system according to claim 16, wherein the image data collecting means is an X-ray CT apparatus comprising: an X-ray source for emitting an X-ray (*Yavuz, Fig.1, el 114, Column 7, lines 20-30*), an- X-ray detector which is opposed to the X-ray source with the object being interposed between the X-ray source and the X-ray detector and detects the X-ray to

output X-ray transmission data (*Yavuz, Fig.1, Fig. 7,Fig. 3, el 136, Column 7, Lines 20-30,Column 12, Lines 20-30*), a rotating means capable of rotating with the X-ray source and the X-ray detector (*Yavuz, Fig.1, Fig. 7,Fig. 3, Column 7, Lines 50-65, Column 12, Lines 20-30, Lines 54-64*), a table on which the object is laid (*Yavuz, Fig.1, Fig. 7,el 746, Fig. 3, Column 7,lines 30-40*), a table controller for controlling a table moving speed for moving the table (*Yavuz, Fig.1, Fig. 7,el 746, Fig. 3, Column 7,lines 30-40*), an image processing means for generating a tomogram of the object based on the X-ray transmission data (*Yavuz, Fig.1, Column 2, Lines 6-15, Column 8, Lines 10-30*), and a display means for displaying the tomogram (*Yavuz, Fig.1, el 142, 140, Column 8, Lines 10-30*), the periodic motion data obtaining means is a heart rate meter for measuring and obtaining a heart rate of the object (*Yavuz, Fig.1, el 160, Column 10, Lines 42-52, Column 11, Lines 4-10, Columns 2, Lines 5-15, 32-44, 53-59, Column 8, Lines 19-30, EKG unit, is used to measure the heart rate of the patient*), the image data collection condition setting means calculates a combination of a change of the periodic motion data and the table moving speed to obtain the desired time resolution (*Yavuz, Column 5, Lines 36-54, 66-67, Column 6, Lines 1-15, Lines 44-54, Column 7 Lines,29-39, Column 12, Lines 54-64*), and the table controller moves the table (*Yavuz, Column 5, Lines 36-54, 66-67, Column 6, Lines 1-25, Lines 44-54, Column 7 Lines,29-39, Column 12, Lines 54-64, a controller sends a signal to the motorized bed to translate the table to move the subject relative to the source*). However, Yavuz does not explicitly teach the table controller moves the table according to the table moving speed.

Pan teaches a cardiac imaging method that includes the steps of positioning a patient on a variable speed table of an imaging device and controlling the table to move according to the table moving speed (*Pan, [0008],[0023],[0025],[002] moving the variable speed table at a primary velocity (table moving speed) during imaging of the cardiac scanning region, and moving the variable speed table at a secondary velocity (table moving speed) during imaging of the at least one non-cardiac scanning region*). Pan uses a variable speed positioning table to speed up data acquisition and reduce motion artifacts as described by Pan at Paragraphs [0005] and the abstract. Pan's "variable speed patient positioning" of the patient for CT imaging system serves to ensure that motion artifacts are reduced, and speeding up the imaging time to image a CT scan (*Pan, Abstract, [0005]*).

It would have been obvious to one of ordinary skilled in the art at the time of inventions to modify the image data collection system of Yavuz, by including the operation in the table controller that allows the controller to moves the table according to the table moving speed according to the teaching of Pan. Yavuz and Pan are analogous in the art of Medical imaging systems for examination of a patient's heart using a CT, and Pan addresses the same problem solving area of medical imaging of a heart using a CT system. One of ordinary skilled in the art would have been motivated to combine the teachings of Pan to the image data collection system of Yavuz in order to speed up the imaging time and also to reduce the motion artifacts in the scan by using the table controller to control the table moving speed as described by Pan (*Pan, Abstract, [0005]*).

Further, Yavuz and Pan collectively teach all of the claimed elements, the teaching of Pan performs the same function in combination with Yavuz as taught individually in Pan, and the results would be highly predictable (an image data collection system that controls the motion of the table to allow variable speed patient positioning to minimize motion artifacts and reduce imaging time).

Allowable Subject Matter

5. Claims 4, 5, 6, 7, 8, 10 and 12, and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Yavuz (US 6,539,074) Teaches a tomographic image collection and generation apparatus which has the ability to extract implicit information from time dependent aspects of volumetric projection data corresponding to multiple data acquisition cycles, which allows the imaging of a patient's heart, or portion of the heart, or at a selected phase in the cardiac cycle.

Pan et al. (US PGPub 2003/0163039) Teaches a medical imaging system that includes a variable speed patient positioning table, the table has a plurality of table speeds, which improves the speed of imagery and reduces the artifacts due to motion during acquisition of data from a selected region of a patient's heart

Regarding Claim 4, the prior art of record, all fail alone or in combination to disclose or render obvious “a time resolution graph and the projected image are superimposed on each other, the time resolution graph indicating the fluctuation in the time resolution of the image data with time” in combination with the other respective claim limitations.

As to Claims 5, 6, 7, 8, 10 are all dependent on Claim 4, and would be allowable as for the same reason mentioned above.

As to Claim 12, the prior art of record all fail alone or in combination to disclose or render obvious “a combination of the suitable change and a speed of the relative movement is calculated in the image data collection condition setting step” in combination with the other respective claim limitations.

Regarding Claim 17, the prior art of record, all fail alone or in combination to disclose or render obvious “the image data collection condition setting means superimposes a time resolution graph and the projected image, the time resolution graph indicating the fluctuation in the time resolution of the image data” in combination with the other respective claim limitations.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Block et al. US 20040254447 A1 Background suppression method for time-resolved magnetic resonance angiography

Bruder et al. US 6556697 B1 Image reconstruction method

Bruder et al. US 20050111622 A1 Method for production of tomographic section images of a periodically moving object with a number of focus detector combinations

Bruder et al. US 20050111623 A1 Method for production of tomographic section images of a periodically moving object with a number of focus detector combinations

Mistretta. et al. US 20050100126 A1 Computed tomography with z-axis scanning

Ozaki, US 20030161435 A1 X-ray computer tomography apparatus

Yavuz et al. US 6522712 B1 Reconstruction of computed tomographic images using interpolation between projection views

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Heidemann whose telephone number is (571)-

270-5173. The examiner can normally be reached on Monday - Thursday/7:30 A.M. to 5:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 571-272-7453. The fax phone numbers for the organization where this application or proceeding is assigned are 571-273-8300 for regular communications and 571-273-8300 for After Final communications. TC 2600's customer service number is 571-272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jason Heidemann/ 11/19/2009
Examiner, Art Unit 2624

/Andrew W Johns/
Primary Examiner, Art Unit 2624